

Exercise 1 Let f be a function defined by $f(x) = 3x$ and g be a function defined by $g(x) = \frac{1}{3x+1}$. Use the pair of functions f and g to find the following values, if they exist. If the value does not exist, enter DNE.

(a) $(f + g)(2) = \boxed{\frac{43}{7}}$

(b) $(f - g)(-1) = \boxed{-\frac{5}{2}}$

(c) $(g - f)(1) = \boxed{-\frac{11}{4}}$

(d) $(f \cdot g)\left(\frac{1}{2}\right) = \boxed{\frac{3}{5}}$

(e) $\left(\frac{f}{g}\right)(-2) = \boxed{30}$

(f) $\left(\frac{g}{f}\right)(0) = \boxed{DNE}$